

REMARKS

Claims 21-25, 27-36 and 45-54 are pending. Claims 47-54 are withdrawn. Reconsideration of all rejected claims is requested in light of the amendments and arguments presented below.

Claim Election/Restrictions

Claims 47-54 were the subject of a restriction requirement. Claims 47-54 are withdrawn without prejudice. No admission is made with respect to the characterization of the claims stated in the Office Action.

Claim Objections

Claim 36 was objected to because of informality. In the amendment dated September 23, 2004, claim 36 was amended to show, "the ~~flexible cable is~~ leads form a ribbon cable." Subsequently, in the Amendment accompanying RCE, dated July 16, 2006, claim 36 was mistakenly written to include, "the flexible cable is leads form a ribbon cable," thus including both added and deleted portions. It is believed that the objection is a result of mistakenly including the deleted portion and that the correct version of claim 36, "the leads form a ribbon cable" would not be subject to such an objection.

Claim Rejections Under 35 U.S.C. §112

Claims 33 and 36 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 33 is amended to replace "a remote system" by "the remote data processing system," which has antecedent basis in claim 1.

Claim 36 was previously amended to delete the term "flexible cable," as discussed above. Thus, the rejection of claim 36 under 35 USC 112 is believed to be overcome.

Claim Rejections Under 35 U.S.C. §102

Claims 21, 28, 30, 31 and 35 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,969,639 to Lauf et al. ("Lauf").

Claim 21 recites, “leads connecting the substrate to the electronics module for transmitting signals between the substrate and the electronics module, the leads providing a flexible connection that allows relative movement between the substrate and the electronics module.” No such leads appear to be disclosed by Lauf. In particular, leads (740) of Lauf (cited in the Office Action) do not appear to be disclosed as flexible or allowing relative movement between wafer (710) and signal conditioning circuit (730). Lauf discloses, “Each of the sensors 720 is electrically connected to a signal conditioning circuit 730 with a lead 740,” paragraph 3, lines 50-52. Also, “all signal measurement and conditioning circuits are integrated onto an 8” wafer 710,” paragraph 3, lines 47-48. Lauf also discloses, “the sensors 720 and the transmitter 750 compose a set of integrated circuits disposed directly upon the substrate 710,” paragraph 3, lines 56-58. Thus Lauf does not appear to indicate relative movement between substrate 710 and signal conditioning circuit 730, or that leads 740 are flexible such that they would allow such movement. Because leads according to claim 21 have not been identified in the cited reference, no *prima facie* case of anticipation is made with respect to claim 21.

Claims 22-25, 27-36, 45 and 46 depend from claim 21 and are submitted to be allowable at least for depending from an allowable claim.

Claim 31 recites, “the transceiver transmits and receives IR signals.” The Office Action cited Lauf (column 5, lines 25-55) as showing these features. However, the cited portion of Lauf appears to refer to IR emitting diodes and does not appear to show IR signals received by elements on wafer 710. Thus, claim 31 further distinguishes over Lauf.

Claim Rejections Under 35 U.S.C. §103

Claims 22, 24, 25, 27, 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lauf, as applied to claims 21, 28, 30, 31 and 35 above, and further in view of U.S. Patent No. 5,444,637 to Smesny et al. (“Smesny”).

Claim 22 recites, “the signal acquisition circuitry is configured to amplify an output signal of the sensors.” The Office Action cited Smesny as showing these features. However, the motivation to combine the sensor of Smesny with the apparatus of Lauf to obtain the claimed combination (“an amplified signal can be more accurately read/processed”) is not well understood. No source was provided for this motivation. “There are three possible sources for

motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” MPEP 2143.01 I. citing *In re Rouffet*. It is requested that a prior art reference (or other source) be provided that shows that an amplified signal can be more accurately read/processed than a signal that is not amplified, or that the rejection be withdrawn.

Claim 24 recites, “the signal acquisition circuitry is further configured to provide an input signal to the sensors.” The Office Action indicated that the sensors of Lauf inherently require an input power signal. However, it does not appear that such an input power signal (assuming it was provided) would necessarily come from signal conditioning circuit 730. The Office Action also cited Smesny as showing a power supply. However, power supply 16 of Smesny does not appear to be in an electronics module and no motivation was provided to modify Lauf to place such a power supply in the electronics module. Thus, the cited reference does not disclose all the claim elements, so no *prima facie* case of obviousness is shown.

Claim 25 is further allowable for at least the reasons given with respect to claim 24.

Claim 27 recites, “the data transmission circuitry comprises an analog to digital converter.” Smesny was cited as showing these features. However the motivation to combine the analog to digital converter of Smesny with the apparatus of Lauf is not clear. “Because digital signals can be more accurately processed by the data processing system/module (850) including an external data processing device and digital signals would be easier to be converted into useful information (read Lauf, column 4, lines 37-42),” Office Action, page 9, lines 11-14. However, the cited portion of Lauf does not appear to disclose that digital signals can be more accurately processed or that they are more easily converted into useful information. It is requested that a source of the motivation be provided, or that the rejection be withdrawn.

Claim 32 recites, “the transceiver transmits and receives sonic signals.” The Office Action cited probe pad (26) of Smesny as providing optical or acoustic/sonic connection and indicated that the combination of acoustic/sonic signals with the apparatus of Lauf was obvious because this would enable data related to the real time processing conditions of wafer (710) to be communicated with the remote data processing system. However, it is not clear that such an advantage is provided by acoustic/sonic signals. In particular, Lauf appears to disclose using RF communication (e.g. see column 4, lines 18-27) and it is not seen how modifying the apparatus

of Lauf for acoustic communication would provide an advantage. Thus, it is not clear what would motivate one to modify Lauf as indicated. Without such motivation, no *prima facie* case of obviousness is stated.

Claim 33 as amended recites, “the data transmission circuitry comprises one or more connectors to couple the remote data processing system to the device with a communications cable.” The Office Action cited probe pads 26 of Smesny as providing mechanical access/connection. However, it does not appear that probe pad 26 of Smesny is a connector according to claim 33. “Probe pad 26, may be configured similar to input probe pad 24,” column 7, lines 53-54. “Pad 24 is a conductive, substantially planar structure connected to the input circuit 22 similar to a bonding pad arrangement normally associated with the periphery of an integrated circuit die,” column 7, lines 43-47. Thus, these claim features are not shown. Furthermore, the cited motivation to modify the apparatus of Lauf according to Smesny (“because this would allow mechanical access from an external output device such as, for instance, the data information stored within the memory of circuit (730),” page 10, lines 16-18) is not understood. Given that the apparatus of Lauf includes RF communication (e.g. see column 4, lines 18-27), it is not clear what would motivate one of skill to modify the apparatus of Lauf for mechanical access. Thus, claim 33 is submitted to additionally distinguish over the cited references.

Claims 23, 29 and 34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lauf, as applied to claims 21, 28, 30, 31 and 35 above, and further in view of U.S. Patent No. 5,669,713 to Schwartz et al. (“Schwartz”).

Claim 23 recites, “the electronics module comprises a micro-controller and is configured to process the output signal using sensor calibration coefficients.” The Office Action cited Schwartz as disclosing these features. However, the cited motivation to modify the apparatus of Lauf according to Schwartz (“because this provides a compact device as a rapid and accurate means of correcting temperature values against an accurate standard,” page 11, lines 17-19) is not understood. It is not seen how adding a micro-controller to the apparatus of Lauf would provide a more compact device. It is also not clear that placing a micro-controller at this location would make Lauf more rapid or accurate. Clarification of these motivations and sources for each motivation are requested.

Claim 29 recites, “the remote system is configured to process the output signal using calibration coefficients to provide a final output value.” With respect to the location where processing of an output signal takes place, the Office Action cited *In re Japikse*, 86 USPQ 70 (CCPA 1950). However, this case appears to refer to a claim that read on the prior art except with regard to the position of one element. This is not the case with claims 23 and 29. Furthermore, MPEP 2144.01VI.C. states with respect to rearrangement of parts, “The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant’s specification, to make the necessary changes in the reference device” (citing *Ex parte Chicago Rawhide*). Because no motivation is provided for processing the output at the electronics module (in claim 23) or at the remote system (in claim 29), a *prima facie* case of obviousness has not been made with respect to these claims.

Claim 34 recites, “the remote system is a microprocessor controlled device.” As with the micro-controller of claim 23, the motivation to add a microprocessor controlled device to the apparatus of Lauf is not understood. Specifically, the motivation to have the remote system be microprocessor controlled is not understood. It does not appear that Schwartz discloses or suggests such an arrangement. Clarification of the rejection is requested. In particular, it is requested that any further rejection identify advantages of using a microprocessor controlled device as claimed.

Claim 36 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lauf, as applied to claims 21, 28, 30, 31 and 35 above, and further in view of U.S. Patent No. 6,190,040 to Renken et al. (“Renken”). Claim 36 (as correctly reproduced – discussed above) recites, “the leads form a ribbon cable.” The Office Action acknowledged that Lauf does not disclose leads (740) being from a ribbon cable and cited Renken as showing these features. However, flat cable portion 52 of Renken appears to extend away from substrate 20 (see Figure 1). In contrast, leads (740) of Lauf appear to extend between sensors 720 and signal conditioning circuit 730, which appear to be integrated onto an 8” wafer (see Figure 7 and column 3, lines 46-61). It is not clear how leads (740) of Lauf, which extend to widely separated sensors 720, could be replaced with a ribbon cable such as that of Renken. Clarification is requested. Furthermore, Lauf appears to

teach away from wires extending from a substrate such as those of Renken (see Figure 1 and column 1, lines 34-50.) Also, the motivation provided to combine the references to obtain the apparatus of claim 36 (“such leads have many advantages like extremely small bending radius, high flexibility and minimum waste of space”) is not well understood. It is not seen how replacing leads 740 of Lauf with a ribbon cable (if possible) would provide any of these advantages over leads 740. Clarification is requested.

Claims 45 and 46 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lauf, as applied to claims 21, 28, 30, 31 and 35 above, and further in view of U.S. Patent No. 6,472,240 B2 to Akram et al. (“Akram”).

Claim 45 recites, “in a first position the electronics module is above or below the substrate, and in a second position the electronics module and the substrate are displaced from each other such that the first and second perimeter do not intersect.” The Office Action indicated that the first position was shown by Lauf and the second position was shown by Akram. However, it is not clear how the different systems of these references would be combined to form a system capable of the two positions of claim 45. Furthermore, it is not seen how the apparatus of Lauf would be modified according to Akram without rendering it unsuitable for its intended purpose. “The proposed modification cannot render the prior art unsatisfactory for its intended purpose,” MPEP 2143.01 V. In particular, modifying the apparatus of Lauf according to Akram would appear to include adding circuitry 12, including wires 14 and resistance thermometer 16. However, adding such wires appears to be contrary to the teaching of Lauf. “Systems and methods are described for a wireless instrumented silicon wafer...it can be used... without the inconvenience of wires or the inevitable thermal perturbations attendant with them,” Abstract (emphasis added). “First, the invention has no wires to perturb the thermal measurements, so the device is an inherently more accurate representation of the actual thermal behavior of the wafer being processed. Second, the invention is inherently robust because fragile connecting wires are eliminated.” Column 6, lines 50-56 (emphasis added). Thus, adding wires appears contrary to the intended purpose of Lauf and Lauf appears to teach away from such a modification. Lauf also appears to disclose advantages of integrating signal conditioning circuits onto a wafer. “Third, the entire device can be made as a monolithic integrated circuit. Fourth, the invention represents a unique integration of sensor, signal conditioner, power supply, transmitter,

and antenna.” Column 6, lines 56-59 (emphasis added). Thus, the addition of resistance thermometer 16 of Akram would appear to be contrary to the intended purpose and Lauf appears to teach away from such a combination. Because such a combination would appear to be unsuitable for the intended use of Lauf and because Lauf teaches away from such a combination, claim 45 is submitted to be additionally allowable.

Claim 46 depends from claim 45 and is submitted to be allowable at least for the reasons given with respect to claim 45. In addition, claim 46 recites, “in the first position both the electronics module and the substrate are held by one or more robot hands and in the second position the substrate is within a chamber and the electronics module is outside the chamber.” The Office Action indicated that these claim elements were not given patentable weight because they were considered to be directed to an intended use. However, it is submitted that the cited features of claim 46 are not merely directed to intended use, but impose some structural limitations. For example, in the second position the substrate and electronics module are separated thus requiring a structure that allows such separation, which would appear to distinguish over Lauf.

Furthermore, it is submitted that intended use may distinguish a claim in some cases. “We do not mean to imply that terms which recite the intended use or a property of a composition can never be used to distinguish a new from an old composition.” In re Pearson, 494 F.2d 1399 at 1403 (one of the cases cited in the Office Action). Because the features of claim 46 add structural limitations, claim 46 is submitted to further distinguish over the cited references.

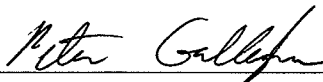
Conclusion

Accordingly, it is believed that this application is now in condition for allowance and an early indication of its allowance is solicited. However, if the Examiner has any further matters

that need to be resolved, a telephone call to the undersigned at 415-318-1167 would be appreciated.

FILED VIA EFS

Respectfully submitted,



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